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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,552	08/19/2003	Benjamin Meseguer	CH-7904/LeA 36,181	4924
34947	7590	02/22/2006	EXAMINER	
LANXESS CORPORATION 111 RIDC PARK WEST DRIVE PITTSBURGH, PA 15275-1112			PERLINGER, SARAH E	
		ART UNIT	PAPER NUMBER	
		1625		

DATE MAILED: 02/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/643,552	MESEGUER ET AL.	
	Examiner Sarah E. Perlinger	Art Unit 1625	

**- The MAILING DATE of this communication appears on the cover sheet with the correspondence address -**  
**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### **Status**

- 1) Responsive to communication(s) filed on 12 January 2006.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### **Disposition of Claims**

- 4) Claim(s) 1-38 is/are pending in the application.  
 4a) Of the above claim(s) 10, 16 and 19-38 is/are withdrawn from consideration.  
 5) Claim(s) 12-14, 17 and 18 is/are allowed.  
 6) Claim(s) 1-9, 11 and 15 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### **Application Papers**

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### **Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### **Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date: _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date: _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

1. Claims 1-38 are pending.

***Election/Restrictions***

2. In response to the restriction requirement mailed 12-21-2005, Applicant has elected with traverse the invention of Group I, claims 1-9, 11-15 and 17-18. Claims of Groups II-VII are withdrawn from further consideration as being drawn to the non-elected inventions.

Applicants argue that the transition metal complex and processes of Groups IV-VII should be examined together with the elected Group I because there is overlap in classification for the groups, and it would not be a burden to search all of the groups together.

On the contrary, though the groups may have overlap in regard to their classification, a different field of search is required for Groups I and IV-VII. While Applicants contend that these groups can be concurrently searched, different queries are necessary for Groups I and IV-VII. For example, a search query for Group IV requires a structure search for a transition metal complex while a search query for Group V requires searching preparation of various stereoisomerically enriched compounds, compounds of which are structurally distinct from the transition metal complex (see MPEP § 808.02(C)).

Furthermore, a reference anticipating Group I compounds or processes for preparing the compounds would not render obvious the transition metal complexes or processes of groups IV-VII. The search is not co-extensive and is burdensome. The restriction as indicated is proper and is therefore made Final.

Should applicant traverse on the ground that the groups are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the groups to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

## 3.

***Specification***

The disclosure is objected to because of the following informality: the application number is not present on the first page of the specification.

Appropriate correction is required.

## 4.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim is indefinite where “those compounds of the formula (I) in which R<sup>3</sup> and R<sup>4</sup> and/or R<sup>5</sup> and R<sup>6</sup> in pairs are identical”. It is suggested that the claim be amended to say, “those compounds of the formula (I) in which R<sup>3</sup> and R<sup>4</sup> are identical, R<sup>5</sup> and R<sup>6</sup> are identical or R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup> and R<sup>6</sup> are identical” given this amendment is supported by applicant’s specification as originally filed.

## 5.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which

said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

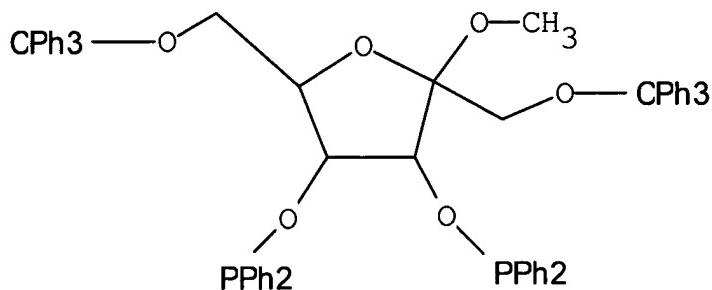
Claims 1, 3, 4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Casalnuovo et al. (US 5,510,470).

Determination of the scope and content of the prior art (MPEP§ 2141.01)

Casalnuovo et al. (US 5,510,470) disclose structurally similar compounds against the base claims as delineated.

Ascertainment of the difference between the prior art and the claims (MPEP § 2141.02)

The only difference between the instant claimed species and the prior art compound, is that instead of having an alkoxy on the 4<sup>th</sup> carbon of the furan ring, the instant claimed species has a hydrogen (see US 5,510,470, column 17, line 50, example B and Figure 1 below).



**Figure 1**

However, the generic teaching of the genus discloses hydrogen as being an interchangeable substituent with an alkoxy group on the fourth carbon of the furan ring (see US 5,510,470, column 6, examples III and IV, lines 35-43).

Finding of prima facie obviousness-rationale and motivation (MPEP § 2142-2143)

One having ordinary skill in the art in possession of US 5,510,470 would be in possession of the instant claims because the generic disclosure fully encompassed species of the instant claims (see US 5,510,470, column 6, examples III and IV, lines 35-46) and the species exemplified by the reference would render the variation taught generically, obvious (US 5,510,470, column 17, example B, line 50). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention, to prepare any of the species of the genus taught by the reference, including those of the claims, because an ordinary artisan would have the reasonable expectation that all of the species of the genus would have similar properties and, thus, the same use as the genus as a whole (see *In re Lemin* 141 USPQ 814).

6. Claims 1, 3, 4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Helmchen et al. (US 5,990,320) in view of Casalnuovo et al. (US 5,510,470).

Determination of the scope and content of the prior art (MPEP§ 2141.01)

Helmchen et al. (US 5,990,320) and Casalnuovo et al. (US 5,510,470) both disclose diphosphine ligands (i.e. analogous art) against the base claims as delineated.

Ascertainment of the difference between the prior art and the claims (MPEP § 2141.02)

The only difference between the instant claimed compounds and the prior art compounds, is that instead of only having a -CH<sub>2</sub>-OR<sup>1</sup> substituent on the 1<sup>st</sup> carbon of the furan ring (US 5,990,320, column 1, lines 29-62), the instant claimed compounds have a CH<sub>2</sub>-OR<sup>1</sup> substituent on the 1<sup>st</sup> and 4<sup>th</sup> carbons of the furan ring. Casalnuovo et al. in analogous art (US 5,510,470) however, taught in similar diphosphine ligands, the options of a single -CH<sub>2</sub>-OR<sup>1</sup> substituent on the 1<sup>st</sup> carbon of the furan ring or disubstituted diphosphine ligands wherein the -CH<sub>2</sub>-OR<sup>1</sup> substituents are on both the 1<sup>st</sup> and 4<sup>th</sup> carbons of the furan ring (see US 5,510,470, column 6, examples III and IV and column 17, compound B, line 50) indicating the same ligand function is obtained whether there is one or two -CH<sub>2</sub>-OR<sup>1</sup> substituent(s) on the furan-ring carbon(s).

Finding of prima facie obviousness-rationale and motivation (MPEP § 2142-2143)

One having ordinary skill in the art in possession of US 5,990,320 would be motivated to modify the diphosphine ligand with a -CH<sub>2</sub>-OR<sup>1</sup> substituent on the 4<sup>th</sup> carbon of the furan ring with a reasonable expectation of success **because** the modification has been illustrated as an equivalent option in analogous art (see US 5,510,470, column 6, examples III and IV). Both references teach the utility of the analogous compounds as ligands for transition metal complexes for use in enantioselective syntheses (see US 5,990,320, column 1, lines 29-62 and US 5,510,470, column I, lines 54-60). Furthermore, both references demonstrate success in using the analogous compounds as ligands to make transition metal complexes (see US 5,990,320, column 40-42 and US 5,510,470, columns 7-8). Finally, both references demonstrate success in using the transition metal complexes as catalysts in asymmetric synthesis reactions (see US 5,990,320, column 7, example 4 and US 5,510,470, column 19, Table 2, Ex. 31). One having ordinary skill in the art would be motivated to make such modifications knowing that reasonable success has been demonstrated in analogous compounds. It is prima facie obvious to modify one known compound with attributes proven in analogous compounds.

7. Claim 9 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 7 (formula Ia, Ic and Id) of copending Application No. 10/660150. Although the conflicting claims are not identical, they are not patentably distinct from each other because the copending claims are drawn to the instant claim when X=oxygen and R<sup>5</sup>=hydrogen of formula (I).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

The instant claim 9 is narrower in scope than the copending claims 1 and 7 of Application No. 10/660150. The instant claim differs from the copending application by reciting a specific species and a more limited genus than the broad claim of the copending application. Claim 7 however of the copending application disclose the specific species in formulas Ia, Ic and Id. Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to select the instant claimed species of the genus taught by the copending application, **because** the species was exemplified in claim 7 (formulas Ia, Ic and Id) and an ordinary artisan would have the reasonable expectation that any of the species of the genus would have similar properties and, thus, the same use as the genus as a whole (see *In re Lemin*, 141 USPQ 814).

8. Claim 15 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 7 (formula Ib) of copending Application No. 10/660150. Although the conflicting claims are not identical, they are not patentably distinct from each other because the copending claims are drawn to the instant claim when X=absent and R<sup>5</sup>=hydrogen of formula (I).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

The instant claim 15 is narrower in scope than the copending claims 1 and 7 of Application No. 10/660150. The instant claim differs from the copending application by reciting a specific species and a more limited genus than the broad claim of the copending application. Claim 7 however of the copending application disclose the specific species in formula Ib. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to select the instant claimed species of the genus taught by the copending application, because the species was exemplified in claim 7 (formula Ib) and an ordinary artisan would have the reasonable expectation that any of the species of the genus would have similar properties and, thus, the same use as the genus as a whole (see *In re Lemin*, 141 USPQ 814).

9. Claims 1, 2, 4-5, 7-8 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3, 5 of copending Application No. 10/660150 in view of Casalnuovo et al. (US 5,510,470) or Helmchen et al. (US 5,990,320). Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant claims are drawn to the copending claims when X<sup>2</sup>= oxygen and X<sup>1</sup>=oxygen or absent.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

The instant claims 1, 2, 4-5, 7-8 are broader in scope than the copending claims 1-3, 5 of copending Application No. 10/660150 where X<sup>2</sup> can be absent or oxygen. The only difference between the instant compounds and the copending compounds is that instead of having an O-R<sup>5</sup> substituent on the 3<sup>rd</sup> carbon of the furan ring, the instant claimed compounds have either an O-P R<sup>5</sup> R<sup>6</sup> or a -P R<sup>5</sup> R<sup>6</sup> substituent on the 3<sup>rd</sup> carbon of the furan ring.

Casalnuovo et al. however, taught in similar diphosphine ligands, an O-P R<sup>5</sup> R<sup>6</sup> substituent on the 3<sup>rd</sup> carbon of the furan ring (see US 5,510,470, column 6, examples III and IV and column 17, line 50, Ex. B).

Furthermore, Helmchen et al. taught in similar diphosphine ligands, a -P R<sup>5</sup> R<sup>6</sup> substituent on the 3<sup>rd</sup> carbon of the furan ring (see US 5,990,320, column I, lines 34-62).

One having ordinary skill in the art in possession of US 5,510,470 and US 5,990,320 would be motivated to modify the monophosphine ligand of the copending application with either an O-P R<sup>5</sup> R<sup>6</sup> or a -P R<sup>5</sup> R<sup>6</sup> substituent on the 3<sup>rd</sup> carbon of the furan ring with a reasonable expectation of success because such modifications have been illustrated as an equivalent options in analogous art. Both references teach the utility of the analogous compounds as ligands for transition metal complexes for use in enantioselective syntheses (see US 5,990,320, column 1, lines 29-62 and US 5,510,470, column I, lines 54-60). Furthermore, both references demonstrate success in using the analogous compounds as ligands to make transition metal complexes (see US 5,990,320, column 40-42 and US 5,510,470, columns 7-8). Finally, both references demonstrate success in using the transition metal complexes as catalysts in asymmetric synthesis reactions (see US 5,990,320, column 7, example 4 and US 5,510,470, column 19, Table 2, Ex. 31). One having ordinary skill in the art would be motivated to make such modifications knowing that reasonable success has been demonstrated in analogous compounds. It is *prima facie* obvious to modify one known compound with attributes proven in analogous compounds.

10. Claim 11 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 9 of copending Application No. 10/660150. Although the conflicting claims are not identical, they are not patentably distinct from each other.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

The instant claim 11 is commensurate in scope with claim 9 of copending Application No. 10/660150. The only difference between the instant claim and the copending claim is that instead of reacting the monophosphorus compound (formula XVIII in the instant claim 11 and formula XVII in the copending claim 9) with the compound, R<sup>5</sup>Z to yield the desired product, the instant claimed process reacts the monophosphorus compound with the compound R<sup>5</sup>R<sup>6</sup>P-Y to yield the desired product. It would however be obvious to one of ordinary skill in the art to substitute the phosphorus reactant (R<sup>5</sup>R<sup>6</sup>P-Y) to obtain the desired diphosphorus product of formula XV because the reactants are structurally analogous. Clear guidance has also been given to one of ordinary skill in the art to employ a halogenated reactant to yield the desired product in prior art (see RajanBabu et al., *J. Org. Chem.*, 1997, 62, 6019, Scheme 9). The instant,

copending, and the reference processes involve analogous reactions of a conventional type. One having ordinary skill in the art would be motivated to make such a modification to the reactant knowing that reasonable success has been demonstrated in analogous reactions (see *In re Albertson* 141 USPQ 730).

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

12.

### **Allowable Subject Matter**

Claims 12-14 and 17-18 are allowed.

13.

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Sarah E. Perlinger, whose telephone number is (571) 272-5574. The examiner can normally be reached on Monday through Friday, 8:30 a.m. to 5:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Cecilia Tsang, can be reached at (571) 272-0562. The fax number for the organization where this application or proceeding is assigned is (571)-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status

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information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

 SP  
02/16/2006

  
Celia Chang  
Primary Examiner  
Art Unit 1625